

Perma-Column Specification

PART 1 GENERAL

1.1 SCOPE

- A. Post frame building column consisting of a pre-cast concrete embedded portion, a wood upper portion, a steel bracket connection between wood and concrete, and galvanized steel uplift anchors for post uplift resistance.

1.2 DESIGN GUIDANCE

- A. Engineering Design Manual for Series 6300, 6400, 8300, 8400, Perma-Columns by David R. Bohnhoff, Ph. D., P.E., Professor, Biological Systems Engineering, University of Wisconsin-Madison
- B. Perma-Column Design and Use Guide for PC6300, PC6400, PC6600, PC8300, and PC8400 Models by Brent Leatherman, P.E., Timber Tech Engineering, Inc.

1.3 STANDARDS

- A. Building Code Requirements for Structural Concrete by the American Concrete Institute (ACI 318).
- B. Manual of Steel Construction, Load and Resistance Factor Design by The American Institute of Steel Construction (AISC).
- C. The National Design Specification for Wood Construction (NDS) by The American Forest and Paper Association (AF&PA).
- D. ANSI/ASAE EP 559, Design Requirements and Bending Properties for Mechanically Laminated Columns.

PART 2 PRODUCTS

2.1 PERMA-COLUMNS

- A. Manufacturer: Perma-Column, Inc.; Contact: 400 Carol Ann Lane Ossian, IN 46777; Telephone: (800) 622-7190; Fax: (260) 622-7192; Website: www.permacolumn.com
- B. Models:
 - 1. PC 6300: for a 3 ply, 2x6 Mechanically Laminated Column (5½" x 4½")
 - 2. PC 6400: for a 4 ply, 2x6 Mechanically Laminated Column (5½" x 6")
 - 3. PC 6600: for a 6x6 Solid Sawn Post Column (5½" x 5½")
 - 4. PC 8300: for a 3 ply, 2x8 Mechanically Laminated Column (7¼" x 4½")
 - 5. PC 8400: for a 4 ply, 2x8 Mechanically Laminated Column (7¼" x 6")

2.2 MATERIALS

- A. Concrete Column: 10,000 (Nominal) psi pre-cast self consolidating concrete (SCC) with four (4) continuous vertical reinforcing bars of A706 weldable 60 ksi yield strength steel. Number 4 bars are used for the PC6300, PC6400, and PC6600 while number 5 bars are used for the PC8300 and PC8400 models. Superplasticizers and polymer fiber reinforcement are added as well as other admixtures to increase freeze/thaw resistance, rust resistance, flexural and compressive strength as well as optimizing the hydration process.
- B. Uplift Anchors: Galvanized, 50 ksi yield strength steel available in two sizes, PC20UA 2"x 2"x 8.5"x 0.134"; PC25UA 2"x 2"x 12"x 0.134"
- C. Steel Bracket: A U-shaped ¼" A36 steel bracket with 5/8" diameters holes for bolts, and 5/16" diameter holes for screws. The bracket uses ½" Grade 2 (ASTM A307) bolts with hex nuts torqued to 110 foot-pounds as well as ¼"x3" strong drive screws (SDS) by Simpson Strong-Tie or equal.

2.3 FABRICATION

- A. The concrete is produced in a controlled environment using a digital batching system to ensure precise curing.
- B. The steel U-bracket is welded to the vertical reinforcing bars to transfer bending loads directly into the foundation.
- C. The wood upper portion may be preassembled to the steel bracket, or assembled in the field.

2.5 HARDWARE

- A. ¼" x 3" SDS by Simpson Strong-Tie or similar. Manufacturer: Simpson Strong-Tie Co; website: www.strongtie.com
 - a. (4) screws required for PC6300, PC6400 and PC6600.
 - b. (8) screws required for PC8300 and PC8400.
- B. ½" Diameter A307 Bolts
 - a. (2) ½ "x 6" bolt with nut and washer required for PC6300 and PC8300.
 - b. (2) ½ "x 7" bolt with nut and washer required for PC6600.
 - c. (2) ½ "x 8" bolt with nut and washer required for PC6400 and PC8400.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Columns to be erected and installed according to the Contract Documents and the Installation Manual by Perma-Column, Inc.
- B. Protect installed product from damage during handling, storage, and construction. Repair or replace damaged installed products.